DIAGNOSTICS FOR HEAVY ION BEAM DRIVEN WARM DENSE MATTER EXPERIMENTS*

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Intense heavy ion beams are an excellent tool to create large-volume samples of warm-dense-matter (WDM) with fairly uniform physical conditions. An extensive WDM experimental program is scheduled at LBNL where NDCX accelerator is used as a driver for heating metallic targets. This poster will focus on designing and implementation of diagnostics for a target. The diagnostics include a fast multi-channel optical pyrometer, absolutely calibrated streak camera-based spectrometer, Doppler-shift laser interferometer (VISAR) and fast gated CCD cameras. This equipment is capable of precise measurement of temperature starting from 1000 K, pressure in kbar region, and expansion velocities up to several km/sec. Temporal resolution of the diagnostic is on a sub-nanosecond time scale.

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